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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,208	05/14/2001	Nanette C. Jensen	10013325-1	9811

7590

12/18/2002

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EXAMINER

WEST, JEFFREY R

ART UNIT

PAPER NUMBER

2857

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/855,208

Applicant(s)

JENSEN ET AL.

Examiner

Jeffrey R. West

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "444" (Figure 9A). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

On page 1, line 6, the Examiner requests that applicant add the co-pending application number 09/855,211.

On page 6, line 12, the "processor" is incorrectly labeled "106" instead of "103" as it is labeled on page 6, line 5, and in Figure 1.

On page 14, line 18, the "sensors" are incorrectly labeled "129" instead of "131" as they are labeled on page 14, line 12, and in Figure 1.

On page 14, line 30, the "current sensor" is incorrectly labeled "121" instead of "131" as it is labeled on page 17, line 28, and in Figure 1.

On page 15, line 25, the "sensors" are incorrectly labeled "129" instead of "131" as they are labeled on page 14, line 12, and in Figure 1.

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On page 16, line 15, and page 17, line 13, Applicant refers to a predetermined amount as "fifteen percent of the sensor saturation level" while block 368 of Figure 7A, shows this value as 85%.

On page 20, line 33, "lock 438" should be --block 438--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,995,243 to Kerschner et al. in view of U.S. Patent Application Publication No. 2001/0026011-A1 to Roberts et al. and U.S. Patent No. 4,982,203 to Uebbing et al.

Kerschner discloses an illumination system with white level calibration for hand-held scanners comprising a processing circuit having a processor and a memory ("24" and "26" in Figure 10) and an LED current control circuit coupled to the processor circuit and the LED (i.e. Pulse-Width Modulation Circuit, "53" in Figure 10) wherein the current control circuit, manipulated by the microprocessor logic (i.e. program) (column 8, lines 47-49), applies a first current for a first time period to

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generate a light output (column 9, lines 9-25) detected by a sensor array (i.e. photosensitive detector) that generates a signal representing the light output of the LEDs when illuminated (column 1, line 59 to column 2, line 6). Kerschner discloses comparing the light output intensity to a predefined threshold and, upon determining that the measured light intensity is greater than the predefined threshold, altering the current pulse width (i.e. time period) to decrease the light output intensity and, upon determining that the measured light intensity is less than the predefined threshold, altering the current pulse width to increase the light output intensity (column 5, lines 45-62). Kerschner then discloses directing the current driver to apply the altered current value to measure a second light output intensity and repeating the comparing, altering, and applying steps until the predefined threshold (i.e. optimum output) is reached (column 5, lines 62-65).

Kerschner, however, discloses altering (i.e. incrementing or decrementing) the current pulse-width to alter the LED intensities, not altering the actual electrical current value. Kerschner also discloses comparing the output value to the predetermined threshold rather than comparing the difference between first and second light outputs to the threshold to alter the current values by a predefined percentage.

Roberts teaches radiation emitter devices, preferably LEDs (abstract), for use in scanning devices (0010) including the well-known property of a linear response between applied electrical current and output intensity (0078).

Uebbing teaches a method and apparatus for improving the uniformity of an LED printhead by compensating for the degradation in light output of a plurality of LEDs (column 4, lines 66-68) comprising obtaining the light output measures of two different pulse-width values and comparing the difference between these values to determine the percentage increase, of the second measure relative the first measure, needed to meet the desired output level deviation/difference (in this case zero) (column 5, lines 1-22).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kerschner to include altering (i.e. incrementing or decrementing) the actual electric current value to alter the LED intensities, as taught by Roberts, because Robert suggests a well known intensity control method, as would be applicable in the invention of Kerschner, that can control the intensities simply over a wide range of operating conditions (0078).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kerschner to include comparing the difference between first and second light outputs to the threshold to alter the current values by a predefined percentage, as taught by Uebbing, because while the invention of Kerschner requires a trial-and-error repetition method to obtain a desired output, the invention of Uebbing suggests a method that would quickly and accurately determine the required change in intensity, and corresponding current modification, with minimal time and effort (column 5, lines 1-32).

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Although the invention of Uebbing only teaches determining a percentage increase, the combination of Kerschner and Uebbing would result in determining a percentage increase or decrease as needed to obtain the optimum output.

Further, although not specifically disclosed, it is considered inherent that the program executed by the microprocessor must be stored in some corresponding memory.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent Application Publication No. 2002/0126503-A1 to Reed teaches a method an apparatus for linear LED lighting including smoothly modifying the intensity output of the LEDs through current altering.

U.S. Patent No. 5,774,165 to Nakajima et al. teaches a light emission intensity width compensating method of a LED print head and corresponding apparatus.

U.S. Patent No. 4,897,672 to Horiuchi et al. teaches a method an apparatus for detecting and compensating light emission from an LED array.

U.S. Patent No. 5,699,103 to Fleming teaches a method for producing a calibrated array of light-emitting diodes.

U.S. Patent No. 6,043,835 to AuYeung et al. teaches a raster output scanner with field replaceable laser diode.

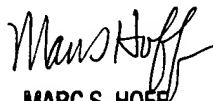
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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. West whose telephone number is (703)308-1309. The examiner can normally be reached on Monday through Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703)308-1677. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7382 for regular communications and (703)308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

jrw
December 10, 2002


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800